

identifying certain generic medications. The model was useful for initial identification of drug-related issues, often providing general health maintenance advice and frequently recommending consultation with a healthcare professional. The responses received average scores of 3.83 for clarity, 2.36 for comprehensiveness, 3.61 for linguistic quality, and 2.47 for reasoning. The results showed no significant differences in accuracy ratings between pharmacists who supported and those who questioned AI's role in solving clinical cases.

**Conclusion:** These findings underscore the importance of a critical approach when interpreting AI-generated responses, as ChatGPT—despite its strengths—can exhibit occasional inaccuracies. Achieving accurate outcomes in clinical contexts requires AI responses to be validated by additional sources and expert review.

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### Methodological approach of a multi-method study to allow the development and implementation of a clinical pharmaceutical competency framework for hospital pharmacists in Austria

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**Background:** Competency frameworks (CFs) from hospital pharmacists are successfully implemented in many countries around the world (e.g. Australia, UK etc.). The successful development and implementation of such a bespoke framework however, continues to pose a considerable challenge.

**Purpose:** This study aimed to justify the chosen methods needed to develop and implement a bespoke national competency framework.

**Method:** An adopt and adapt approach is often used in the development of CFs. To this end a systematic review (SR) was carried out as a first step in this multi-method approach to comprehensively collate all published CFs. The protocol was registered with PROSPERO and the documents' quality assessed to allow a robust selection of included CFs. The most applicable competency framework to adapt to the Austrian context was identified to be the Common Training Framework (CTF) for hospital pharmacy practice across Europe. After extracting behavioral competencies from all additionally identified documents, discursive analysis within the team (BBM/JTS/AEW) assessed contextual national appropriateness and allowed mapping of the selected behavioral competencies to the CTF. This resulted in a preliminary national competency framework. Validation was carried out by an expert panel consisting of the board members of the Austrian Association of Hospital Pharmacists (AAHP). This resulted in the final version of the competency framework. The final step in this multi-method study was an analysis of possible barriers and facilitators for its implementation into practice. A phenomenological approach was chosen using face-to-face interviews with key healthcare (policy) stakeholders across Austria. The interview study used the domains of the Consolidated Framework for Implementation Research (CFIR) to underpin interview guide development and framework analysis.

**Findings:** The development of the bespoke competency framework and the related identified barriers and facilitators helped to inform a law change for hospital pharmacists in Austria which enables hospital pharmacists to work under the delegation of a medical prescriber. This represents the first significant role extension for hospital pharmacists since 1984.

**Conclusion:** This multi-method approach could serve as a supporting guideline for other countries that might struggle when trying to develop and implement a bespoke competency framework for hospital pharmacy practice.

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### A comparison of Gen AI vs focus group discussion: Findings on workflow and design recommendation to develop a deprescribing application to assist medication review.

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**Background:** Optimising drug therapy for older adults in nursing homes is challenging due to polypharmacy, leading to poor compliance and adverse drug events from potentially inappropriate medications. A deprescribing application can improve medication review and existing workflow in nursing homes. However, to develop a usable deprescribing application, it is important to know the design and workflow recommendations from the key stakeholders first. Recently, there have also been questions about whether Generative Artificial Intelligence (Gen AI) can replace human research participants, to generate data that could save time and effort. We decided to do a comparison study with Gen AI in our Focus Group Discussion (FGD), as the pool of key decision-makers in nursing homes is inherently small.

#### Purpose

1) To conduct a FGD with key decision-makers in nursing homes to assess operation flow considerations and design recommendations for developing and implementing a mobile deprescribing application.

2) To further compare Gen AI output with thematic findings from the FGD.

**Method:** The FGD participants include key stakeholders (director, manager, administrator) involved in the management of nursing homes. The questions were validated, and informed consent was sought. Verbatim transcription was conducted from the audio recording. Subsequently, similar prompts were posted to ChatGPT 3.5 (a text-to-text model) and 4.0 (a data-to-text model). Data were analysed using qualitative content analysis. Data was coded and themes were generated for comparison. Inter-rater reliability was analysed from subthemes with SPSS 27 and NVivo 1.7.1.

**Findings:** The FGD was conducted with six participants lasting an hour. In-depth discussion was conducted, and four main themes were generated: "Reliability and adaptability to existing infrastructure"; "Medication management and communication"; "User competency, maintenance and legal considerations"; "Design considerations with regards to existing practices". Similar themes were generated from ChatGPT 3.5 and 4.0. When comparing with FGD, responses from both ChatGPT 3.5 and 4.0 were broader in coverage. However, they lacked depth to prompts and were repetitive. Our study suggested that it is not recommended to be used alone to replace human participants (Cohen's Kappa,  $\kappa = -0.154$ ).

**Conclusion:** In our FGD, we discovered that operational workflow requirements and design standardisation are important considerations for developing a usable and sustainable application for deprescribing. In addition, ChatGPT cannot fully replace human participants in our FGD study, but data could be used as a supplement. More research is needed to explore the potential of Gen AI as it continues to evolve.

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### Implementation of pharmaceutical care services in Bulgaria –a case with rheumatoid arthritis

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**Background:** Rheumatoid arthritis (RA) is a chronic inflammatory joint disease that causes persistent pain, swelling, and destruction of joint structures. The development and implementation of pharmaceutical services for these patients have been neglected in many countries, despite the pharmacist's potential as the

most accessible healthcare professional. Pharmacists might provide support in optimizing therapeutic regimens, monitoring therapeutic progress, and addressing drug-related problems.

**Purpose:** The objective is to analyze the attitudes of patients and practicing pharmacists regarding the implementation of clinical pharmacy services in the care of patients with rheumatoid arthritis (RA) in Bulgaria.

**Method:** A cross-sectional online survey was conducted among practicing pharmacists across the country and RA patients being monitored at the University Hospital “Ivan Rilski” in Sofia, Bulgaria between June 2024 and September 2024. The survey aimed to assess their attitudes towards the provision of pharmaceutical care services (PCS). Data were processed using the specialized statistical software MedCalc v. 23.0.5, applying the following analyses: point and interval estimation, frequency and graphical analysis, and hypothesis testing for the studied variables.

**Findings:** As patient age increased [n=100, average age 53.34 years, 95% CI 50.00–55.00], the number of respondents who answered positively that the pharmacist provides necessary medication information also increased (p=0.0494). A statistically significant majority of patients (57%) reported they would not pay for PCS, and 48% never consult a pharmacist (p < 0.0001). Among the 53 pharmacists surveyed, a statistically significant majority (87%, p<0.0001) had not received additional training on RA, with most agreeing that a service fee for PCS should match that charged by the attending physician (1.45 euro) (42%, p<0.0001). Bulgarian pharmacists identified the benefits of PCS for RA (such as increased trust in pharmacists (88.68%) and improved quality of life (83.02%)), while also highlighting considerable obstacles, including lack of time (81.13%) and financial incentives (52.83%).

**Conclusion:** Efforts are needed not only to ensure adequate regulatory and financial access to RA treatment in Bulgaria but also to establish the active role of pharmacists in patient care to achieve desired outcomes.

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#### The role of the pharmacist in the treatment of patients with multiple sclerosis

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**Background:** Multiple sclerosis (MS) is a chronic neurological disease that leads to progressive disability, impairing the quality of life for patients and their families. Optimizing drug therapy and preventing drug related problems, with the active role of the pharmacist, can reduce the frequency of hospitalizations and the need for additional medical interventions, resulting in lower healthcare system costs.

**Purpose:** To evaluate the role of pharmacists in the treatment of patients with MS, with a focus on their integration into the multidisciplinary team.

**Method:** A four-step analysis was conducted: (1) a systematic review of scientific literature to assess the pharmacist's role; (2) a cross-sectional survey among 63 MS-diagnosed patients receiving care at the Neurology Clinic of University Hospital “Alexandrovska” in Sofia to assess their attitudes toward pharmaceutical care (PC); (3) a SWOT analysis to identify marketing opportunities for implementing pharmaceutical care for MS in Bulgaria; and (4) development of a pharmacist protocol to identify and prevent drug-related problems (DRPs) among MS patients. Survey results were analyzed using the Statistical Package for the Social Sciences (SPSS) and Microsoft Excel.

**Findings:** The systematic review identified 11 relevant studies indicating that including pharmacists in multidisciplinary teams improves adherence to therapy and reduces DRPs. The majority (75%) of patients consider pharmacist involvement important, but the percentage of patients consulting pharmacists (27%) and those willing to pay for PC (38.8%) remains low (p<0.05). The SWOT analysis confirms the potential for developing PC in Bulgaria, emphasizing economic benefits but also highlighting the need for further training and awareness in this area.

**Conclusion:** Integrating pharmacists into MS treatment is associated with improved patient quality of life, economic benefits, and optimized medication therapy. Additional measures and policies at the national level are needed to establish pharmacists as key members of the multidisciplinary team in the care of MS patients.

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#### Vitamin D Screening in Pharmacies: Insights from a Federal Campaign and Prospects for Professional Advancements

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**Background:** Pharmacies are ideal settings for health screening due to their accessibility and convenience. Increasing concern over vitamin D deficiency, especially in winter months in northern and mid-latitudes, underscores the importance of accessible screening options.

**Purpose:** This study evaluated vitamin D levels in early spring and examined the viability of a large-scale vitamin D screening initiative in pharmacies.

**Methods:** The research was a cross-sectional, multicenter survey integrated into routine pharmacy care in the State of Salzburg. Data was collected anonymously, utilizing a fluorescent immunoassay for point-of-care-testing. Additionally, separate questionnaires were designed for patients and providers. Descriptive statistics were used to analyze quantitative data, with parametric and nonparametric tests applied to ensure comprehensive analysis. A maturity matrix was developed to assess the potential for broad implementation.

**Findings:** During a two-week campaign, 62 pharmacies performed 2,770 vitamin D tests. Patients found out about the campaign mainly by advertisement in the pharmacies. Every participant completed the questionnaire, and 45 pharmacists took part in a follow-up survey. About half of the patients had never tested their vitamin D level before. Results showed that 56.2% of participants had vitamin D deficiency, and 25.2% had insufficient levels. Higher BMI was linked to lower vitamin D levels, while daily supplementation was associated with higher levels than intermittent dosing. Patient satisfaction was high, and pharmacists appreciated the positive patient feedback, expressing interest in expanding testing. Most pharmacists supported a professional change towards more clinical pharmacy services in the future. The maturity matrix developed in this study could support corporate adoption of similar screening efforts.

**Conclusion:** This large-scale federal vitamin D screening in pharmacies was successful, with both patients and pharmacists reporting high satisfaction. It extended this otherwise underutilized medical service to patients who typically lack access to it. The study revealed widespread vitamin D deficiency among participants, reinforcing the potential value of regular pharmacy-based screening. Pharmacists showed enthusiasm for further expanding clinical services to support patient health in new ways.

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#### Using a mixed-mode method to assess the effects of a structured counseling approach on pharmacy students' communication self-efficacy and skills

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**Background:** Standardized instructional methods in pharmacy education are vital for ensuring high-quality teaching and accountability. To support students' counseling skills for over-the-counter (OTC) medications, we introduced a 5-step structured counseling approach to guide their practice.

**Purpose:** This study involved senior pharmacy students applying structured approach to counseling on OTC medications during advanced experiential training. Through a mixed-mode assessment technique, we sought to evaluate the impact of this approach on the students' self-efficacy and counseling skills for